AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application. Additions are shown as underlined and deletions are shown as ~~struckthrough~~.

1. (Currently Amended) A method of treating or preventing a disease involving cell hyperproliferation, comprising inhibiting the interaction between Hec1 protein and at least one further protein by administering a small molecule drug, thereby lessening cell hyperproliferation.

2. (Original) The method of claim 1, wherein the further protein is selected from a group consisting of Nek2 protein and Hint1 protein, or functional homologs thereof.

3. (Original) The method of claim 1, wherein interactions between Hec1 protein and two or more further proteins are inhibited.

4. (Currently Amended) The method of claim 1, ~~A method of treating or preventing a disease involving cell hyperproliferation, comprising~~ wherein the inhibition of the interaction between Hec1 protein and at least one further protein comprises reducing or preventing phosphorylation of residue 165 of Hec1 protein, or a corresponding functional residue of a homolog of Hec1 protein~~, thereby lessening cell hyperproliferation~~.

5. (Currently Amended) The method of ~~claim 4~~ claim 1, wherein ~~reducing or preventing phosphorylation comprises inhibiting interaction of Hec1 protein with a~~ the further protein ~~that~~ acts as a kinase.

6. (Canceled)

7. (Canceled)

8. (Currently Amended) The method of claim 1, ~~A method of treating or preventing a disease involving cell hyperproliferation, comprising~~ wherein the inhibition of the interaction

between Hec1 protein and at least one further protein comprises reducing phosphorylation of amino acid residues other than residue 165 of Hec1 protein, wherein reduced phosphorylation prevents or lessens a protein function characteristic of phosphorylated Hec1 protein.

9. (Canceled)

10. (Canceled)

11. (Currently Amended) The method of claim 1, wherein the disease involving cell hyperproliferation ~~proliferative disease~~ is a cancer.

12. (Original) The method of claim 11, wherein the cancer is a carcinoma.

13. (Currently Amended) The method of claim 12, wherein the carcinoma is a carcinoma selected from the group consisting of: ~~acinar carcinoma, adenocystic carcinoma, adenosquamous carcinoma, adnexal carcinoma, alveolar carcinoma, apocrine carcinoma, basal cell carcinoma,~~ bladder carcinoma, breast carcinoma, ~~bronchioloalveolar carcinoma, bronchogenic carcinoma,~~ cervical carcinoma, ~~colon carcinoma, cholangiocellular carcinoma, chorionic carcinoma, clear cell carcinoma, colloid carcinoma, cribriform carcinoma, ductal carcinoma, embryonal carcinoma, carcinoma en cuirasse, endometroid carcinoma, epidermoid carcinoma, esophageal carcinoma, carcinoma ex pleomorphic adenoma, follicular carcinoma of thyroid gland, gastric carcinoma,~~ hepatocellular carcinoma, ~~carcinoma in situ, intraductal carcinoma, Hurthle cell carcinoma, inflammatory carcinoma of the breast, large cell carcinoma, lung carcinoma, invasive lobular carcinoma, lobular carcinoma, medullary carcinoma, meningeal carcinoma, Merkel cell carcinoma, mucinous carcinoma, mucoepidermoid carcinoma, nasopharyngeal carcinoma, non-small cell carcinoma, oat cell carcinoma, pancreatic carcinoma, papillary carcinoma,~~ and prostate carcinoma~~, renal cell carcinoma, scirrhous carcinoma, sebaceous carcinoma, carcinoma simplex, signet-ring cell carcinoma, small cell carcinoma, spindle cell carcinoma, squamous cell carcinoma, terminal duct carcinoma, transitional cell carcinoma, tubular carcinoma, and verrucous carcinoma~~.

14. (Original) The method of claim 11, wherein the cancer is a sarcoma.

15. (Original) The method of claim 14, wherein the sarcoma is a sarcoma selected from the group consisting of alveolar soft part sarcoma, ameloblastic sarcoma, botryoid sarcoma, clear cell sarcoma of kidney, endometrial stromal sarcoma, Ewing's sarcoma, giant cell sarcoma, hemangioendothelial sarcoma, immunoblastic sarcoma of B cells, immunoblastic sarcoma of T cells, Kaposi's sarcoma, Kupffer cell sarcoma, osteogenic sarcoma, pseudo-Kaposi sarcoma, reticulum cell sarcoma, Rous sarcoma, soft tissue sarcoma and spindle cell sarcoma.

16. (Original) The method of claim 11, wherein the cancer is retinoblastoma, glioblastoma, or neuroblastoma.

17. (Currently Amended) The method of claim 1, wherein the disease involving cell hyperproliferation ~~proliferative disease~~ is stenosis.

18. (Original) The method of claim 17, wherein the stenosis is a stenosis selected from the group consisting of aoritic stenosis, hypertrophic pyloric stenosis, infantile hypertrophic gastric stenosis, mitral stenosis, pulmonary stenosis, pyloric stenosis, subaortic stenosis, renal artery stenosis, and tricuspid stenosis.

19. (Original) The method of claim 17, wherein the stenosis is restenosis that occurs following treatment of a blood vessel.

20. (Original) The method of claim 19, wherein the treatment of the blood vessel is selected from the group consisting of balloon angioplasty and any other angioplastic procedure.

21. (Original) A method of identifying a compound that reduces an interaction between Hec1 protein and at least one further protein, comprising:

a) contacting Hec1 protein and the at least one further protein in the relative absence

of the compound;

b) contacting Hec1 protein and the at least one further protein in the relative presence of the compound;

c) determining the relative amount of interaction between the Hec1 protein and the at least one further protein in a) and b); and

d) comparing the relative amount of interaction, wherein if the relative presence of the compound causes less interaction than the relative absence of the compound, the compound is identified as a compound that reduces an interaction between the Hec1 protein and the at least one further protein.

22. (Original) The method of claim 21, wherein the at least one further protein is Nek2 protein.

23. (Original) The method of claim 21, wherein the at least one further protein is Hint1 protein.

24. (Original) The method of claim 21, wherein the Hec1 protein is immobilized and the relative amount of interaction is determined by measurement of co-immobilization of the at least one further protein.

25. (Original) The method of claim 21, wherein at least one of the further proteins is immobilized and the relative amount of interaction is determined by measurement of co-immobilization of the Hec1 protein.

26. (Original) The method of claim 21, wherein b) and c) include immunoprecipitation of proteins.

27. (Original) The method of claim 21, wherein b) and c) include co-localization of labels specific for Hec1 protein and the further protein.

28. (Original) A method of identifying a molecule that interferes with a function of Hec1 protein, Nek2 protein and/or Hint1protein and inhibits cell proliferation, comprising:

a) contacting a sample comprising cells with the molecule or a combination of molecules; and

b) measuring the amount of cell proliferation, cell cycle progression, cell cycle arrest, or apoptosis in the sample exposed to the molecule or combination of molecules, whereby a decrease in cell proliferation, a decrease in cell cycle progression, an increase in cell cycle arrest, or an increase in apoptosis in the sample comprising proliferating cells exposed to the molecule or combination of molecules, relative to the amount of proliferation, cell cycle progression, cell cycle arrest, or apoptosis in a sample comprising proliferating cells not contacted with the molecule or combination of molecules, identifies a molecule or combination of molecules that inhibits proliferation of the cells.

29. (Original) The method of claim 28, wherein the sample comprises isolated cells.

30. (Original) The method of claim 28, wherein the sample a tissue sample.

31. (Original) The method of claim 28, wherein the sample is a tissue sample in an organism.

32. (Original) A method for identifying a potential ligand of a Hec1 protein, comprising:

a) synthesizing the potential ligand;

b) contacting the potential ligand with a Hec1 protein domain-containing protein; and

c) determining whether the potential ligand binds to the Hec1 protein domain-containing protein.

33. (Original) The method of claim 32, further comprising: d) determining whether the ligand reduces cell proliferation when contacted with a proliferating cell.

34. (Original) The method according to claim 32, wherein the potential ligand is designed de

novo.

35. (Original) The method according to claim 32, wherein the potential ligand is designed from a known compound.

36. (Previously Presented) A molecule or ligand identified by the method of claim 21 wherein the molecule or ligand identified lessens proliferation when contacted with proliferating cells.

37. (Original) The molecule of claim 36, wherein the molecule is selected from the group consisting of IBT4282, IBT6432, IBT11830, IBT12008, IBT13131, IBT14664 or IBT15154.

38. (Original) A composition comprising a molecule or ligand of claim 36 and a pharmaceutically acceptable carrier.

39. (New) The method of claim 1, wherein the small molecule drug contains a core phenyl-thiozol-benzamide structure.

40. (New) The method of claim 39, wherein the small molecule drug is IBT13131 or is substantially similar in structure to IBT13131.

41. (New) The method of claim 39, wherein the small molecule drug is IBT14664 or is substantially similar in structure to IBT14664.

42. (New) The method of claim 11, wherein the cancer is an Rb-deficient cancer.